

FACT SHEET

2023 NATIONAL TRANSMISSION NEEDS STUDY NEW ENGLAND

The U.S. Department of Energy's Grid Deployment Office (GDO) released the National Transmission Needs Study ("Needs Study") in October 2023. The Needs Study is the Department's **triennial state of the grid** report. It identifies transmission needs and provides information about current and anticipated future capacity constraints and congestion on the Nation's electric transmission grid. In this fact sheet, we highlight the transmission needs of New England. The Needs Study provides further detail on the benefits of transmission that could be realized throughout the country.



Current or Anticipated Need

Improve reliability & resilience



Alleviate congestion & unscheduled flows

Alleviate transfer capacity limits between neighbors



Deliver cost-effective generation to meet demand



Meet future generation & demand with within-region transmission



Meet future generation & demand with interregional transfer capacity



FINDINGS OF TRANSMISSION NEED IN NEW ENGLAND

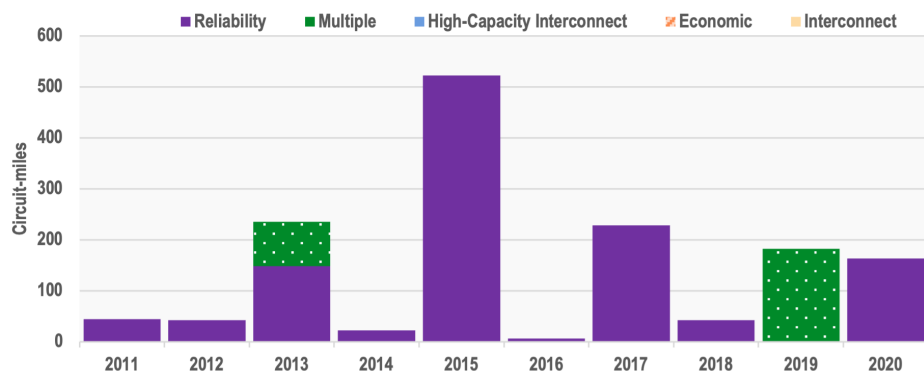
- › **Improve reliability and resilience.** Resource adequacy will be harder to maintain in a future where load is served by only variable energy resources. A robust transmission system is needed to access a diverse generation mix throughout the region. Increased interregional transmission provides resilience and consumer savings during extreme weather events, as experienced by the Northeast in the January 2018 bomb cyclone event.
- › **Alleviate transfer capacity limits between New England and New York.** The highest congestion value of interregional transmission in the Eastern Interconnection from 2012 through 2020 exists between New England and New York, with an average marginal value of transmission ranging from \$16 to \$21/MWh. A high congestion value indicates that additional transmission between the regions would reduce system congestion and constraints.
- › **Deliver cost-effective generation to meet demand.** Increased interregional transmission provides resilience and consumer savings, as experienced by the Northeast in the January 2018 bomb cyclone event.
- › **Meet future generation and demand with additional interregional transfer capacity.** New England will need an estimated 3.4 to 6.3 GW of additional transfer capacity with New York in 2035 (median of 5.2 GW, a 255% increase relative to the 2020 system) to meet moderate load growth and high clean energy growth future scenarios.

HELPFUL LINKS

- › Read the full study at: www.energy.gov/gdo/national-transmission-needs-study
- › Contact GDO with additional questions: transmission@hq.doe.gov

FINDINGS AT A GLANCE

Circuit-miles of new or rebuilt transmission lines (≥ 100 kV) energized between 2011 and 2020 by project driver.

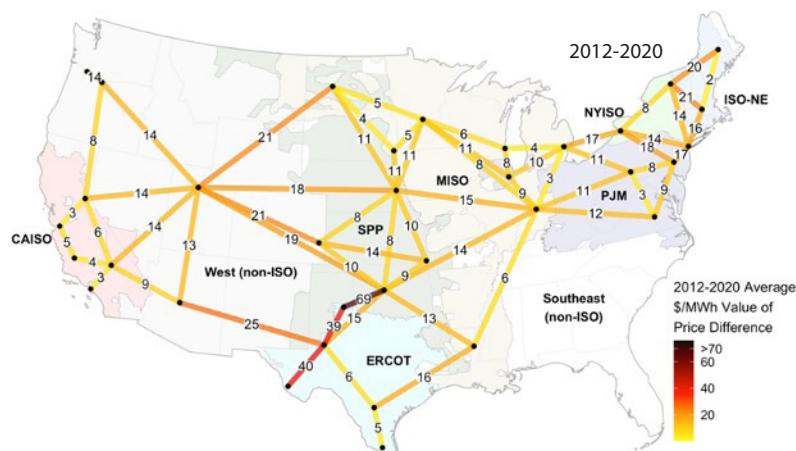


Transmission projects energized over the last decade in New England were predominantly installed to **address reliability concerns**, and occasionally to address multiple drivers.

Congestion value of hypothetical transmission links between select zonal nodes within and across regions.

Wholesale market price differentials demonstrate that a **high value of new interregional transmission exists between New England and New York**.

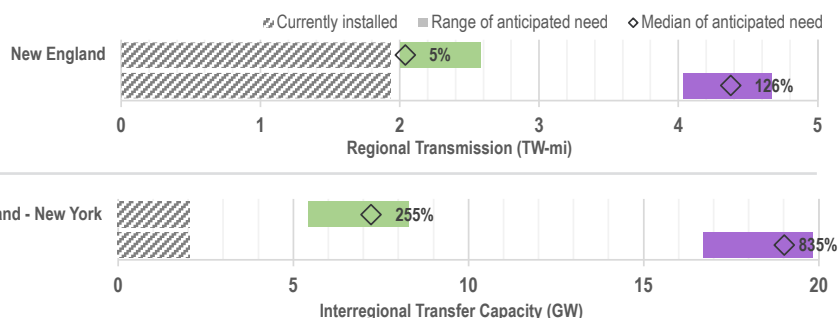
The average marginal value of transmission between New England and New York from 2012 through 2020 is equal to \$19/MWh.



Note: Wholesale market price data is limited for non-Regional Transmission Organization (RTO)/Independent System Operator (ISO) regions. Absence of data does not necessarily indicate that there is no need for transmission to alleviate congestion and/or unscheduled flows in non-RTO/ISO regions. Findings are organized using geographic region nomenclature as described in the Needs Study. Source: D. Millstein, et al. (2022)

Within-region transmission and interregional transfer capacity need for New England in 2035

Range of new transmission need for future scenarios with **moderate load and high clean energy growth** (green, top for each region) and **high load and high clean energy growth** (purple, bottom). Median % growth compared to 2020 system shown.



Capacity expansion modeling results for the Moderate/High scenario group suggest an anticipated need of **0.1 TW-mi of new within-region transmission by 2035** (5% growth relative to 2020) and **5.2 GW of new interregional transfer capacity with New York by 2035** (255% growth relative to 2020).

Median 2035 capacity expansion modeling results for Moderate/High scenario group.